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ABSTRACT

This is one of a series of units for environmental education developed by the Highline Public Schools. This unit for kindergarten introduces the pupil to the concept of environment. Various aspects of the environment are explored through 14 lessons using our five senses. Each activity includes the concept of the lesson, materials needed, procedure, evaluation activities, and suggested additional activities. Also included are sheets for making overhead transparencies, resource lists, and background information. Materials were tried and evaluated; evaluation data may be obtained from the Highline Public Schools. (RH)

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PEACE PAK

Your World My World

by Shirley Peace

An Environmental Learning Experience for Kindergarten. One of many "ELE PAKS" available for all areas.

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SE 021 442

NATURE KNOWS BEST

PROJECT ECOLOGY TITLE III

EVERYTHING IS CONNECTED TO EVERYTHING ELSE — PROJECT ECOLOGY

THERE IS NO SUCH THING AS A FREE LUNCH — PROJECT ECOLOGY TITLE III

EVERYTHING MUST GO SOME WHERE — PROJECT ECOLOGY TITLE III

The Kids Who Participated in the Pilot Evaluation Program

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Lisa Eickholt
Alison Ganung
Tauna Hanson
Colleen Herb
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Evaluation Results Regarding This ELE May Be Obtained by Including This Page and a Self Addressed Stamped Envelope To

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BACKGROUND INFORMATION
(For more detailed information; see lesson plans)

WHAT IS OUR ENVIRONMENT?

The environment is everything around us. It includes all the people, animals, plants, air, water, and land. Also the things that man makes and build become part of our environment. Each of us is part of our environment.

WHAT IS AN OUTDOOR CLASSROOM?

An outdoor classroom is a place on or close to our school grounds where we can go to find out about our environment.

WHY ARE OUR FIVE SENSES IMPORTANT?

Our five senses are important because we use them to find out about things in our environment. In this study children are asked to examine a number of things, both inside and out, using their senses.

HOW DO WE DECIDE IF SOMETHING IS LIVING OR NON-LIVING? PLANT OR ANIMAL?

We examine two things very carefully with our five senses. Then we decide how they are different or how they are the same. The classification system is left up to the children with guidance from the teacher.

WHAT ARE SOME KINDS OF ENVIRONMENTS WE COULD OBSERVE IN OUR CLASSROOM?

We could observe a worm farm, an aquarium, a terrarium, and plants in different environments. Specific directions for setting all these up are included in this unit.

WHAT DO PLANTS NEED TO LIVE?

Plants need minerals, air, light, and water. Very little emphasis is placed on photosynthesis. Also no mention is made of carbon dioxide and oxygen exchange between plants and animals.

WHAT DO ANIMALS NEED?

Animals need food, air, light, and water. The children learn this from observation of the aquarium and terrarium.

WHY DO ENVIRONMENTS CHANGE?

Environments change because living things are using non-living things and each other to live. Children will observe changes inside and outside and some of the causes of changes are discussed.

DOES EVERYTHING IN THE ENVIRONMENT CHANGE?

Yes, but some changes take place very slowly, some very rapidly.

WHAT ARE SOME THINGS WE NEED FROM OUR ENVIRONMENT?

Some things we need are food, clothing, and homes. Most of our food can be traced back to a plant.

WHAT HAPPENS WHEN PEOPLE ARE CARELESS WITH OUR ENVIRONMENT?

Our environment is changed very quickly and so many organisms do not have the things they need in order to survive. Also then our environment is not as beautiful.

WHAT IS LITTER?

Litter is anything that people throw away in the wrong place. Children should be very conscious of litter and their responsibility about it by the end of the study.

WHAT IS A CONSERVATIONIST?

A conservationist is someone who works to take care of our environment and keep it beautiful and productive.

WHO ARE SOME PEOPLE WHO WORK TO TAKE CARE OF OUR ENVIRONMENT?

The forest ranger, the custodian, and the garbage collector all help to take care of our environment. But it is the responsibility of each one of us to help.

CONCEPTUAL OVERVIEW OF UNIT

1. Introducing the word "environment" (3 lessons)
   We find out about our environment by using our five senses.

2. Our environment is made up of many different things, some living and some non-living. (2 lessons)

3. Some living things are plants and some are animals. (1 lesson)

4. Plants and animals depend upon the non-living in their environment.
   Plants and animals depend upon each other in their environment. (2 lessons)

5. Plants and animals are affected by their environment and adapt to it.
   Plants and animals die and become another part of the environment.
   (2 lessons)

6. People, as living things, use their environment to live. (1 lesson)

7. People change their environment, sometimes very quickly. (1 lesson)

8. People create litter; litter changes the environment. Litter is our responsibility. (1 lesson)

9. There are special people who work to take care of our environment.
   Each one of us needs to take care of our environment. (1 lesson)

NOTES TO THE TEACHER

The fourteen lessons in this unit are planned for a one-per-day presentation. Each lesson should take from 1/2 to 3/4 of an hour, with the exception of lesson 7, which will take longer. Also, the amount of time it takes you to go to the outdoor classroom will have some influence on lesson time. The extra activities suggested could be carried out during a free choice activity time and/or story time. Also after lesson 7, some time should be allowed for informal observation of different environments set up in the classroom. It is suggested that this period be when children first arrive at school.

It is possible to divide the total unit into three one week periods with the three sections not necessarily being presented in three consecutive weeks. In this way the teacher could bring in other areas of study between the concentrated studies on ecology. Also it could work out better to split some lessons into two days which, of course, would take a longer period of time.

Materials for this unit can be acquired several ways. On the master materials list, all times not starred (*) or marked (+) are included in akit which comes with this study guide. Starred items are to be obtained by the teacher; materials for extra activities are usually starred. Items marked (+) are live materials which can be ordered by the teacher from Kathy Daws - 2528. Please order a few days before you will need the materials. It may be that you will wish to keep some materials, such as the aquarium and terrarium. Check with your principal about this. If you are using this study guide without the kit or services of the Highline District, all materials can be easily purchased from a grocery story, pet shop, or hardware store or are easily available at home or school. Films may be ordered from E.R.A.C. and are highly recommended. Be sure to order as far in advance as possible. All books on the book list are available in your school library, E.R.A.C., or Burien Branch of King County Libraries. There also may be film loops available in your school library.

Throughout the PROCEDURES section of each lesson, suggestions of questions and related information for the teacher is written in script type.

There are several lessons requiring the use of an outdoor classroom. It is the teacher's responsibility to choose this. First look on your school grounds for as natural an area as you can find. It should have some rocks, brush, grass and weeds, dead logs, and trees in it. A stream or pond would be even better. If there is no such area on the school grounds, perhaps there is a park or vacant lot close by. Remember if you are going off the school grounds, you will need parental permission to take the children. Check with your principal or school policies regarding walking field trips. And if you are going to a vacant lot, try to get permission of the owner if possible. If you are teaching in an inner city school, examine weeds at the playground edges, and in sidewalk cracks. Small animals such as spiders and insects can be found and birds, dogs, and cats will perhaps be around. Be sure to discuss reasons for lack of plants and animals.

It is necessary that you use the outdoor classroom for the lessons suggested. This means you should go regardless of the weather, at least for a short time. Remember weather is also part of our environment.

If you are using the study in two classes, you may wish to set up the aquarium with one class and the terrarium with the other. Although the kit is set up for two classes of 30 each, there are only materials for one aquarium and one terrarium. If you wish both classes to have both experiences, you may need to order extra materials.

In several lessons, the children are put in groups of two. You will want to arrange these partners so that you will get the maximum participation from each student.

Things to do before the first lesson.

1. read the complete study unit
2. choose outdoor classroom
3. order films, collect books
4. order live materials from Kathy Daws - 2528
5. read over first lesson to decide whether you are going to make the "oobleck" before the lesson or during the lesson
6. Read "Bartholomew and the Oobleck" enough times so you will be able to tell the story without reading it word for word. It is too long for kindergarten age, at least in the fall.
7. plant several containers of beans for additional plant experiments in lesson 8
8. Find out when the garbage collector comes to pick up the trash at school. If possible, arrange to have him talk with the children. See lesson 14.

I sincerely hope this is only the beginning for you, and that you and your children will have a delightful time exploring our environment.

MASTER MATERIALS LIST
(For two classes of 30 each)

c = consumable item

KIT

1	explorer hat
1	picture of astronaut
2	five senses wall charts - c
4	pkg. cornstarch - c
2	cups vinegar - c
1	bottle green food coloring - c
30	small plastic sacks - c
30	small paper cups - c
15	sets of the following in plastic sacks 5 buttons (different sizes) 5 beans (different kinds) 5 shells (different kinds) 5 rocks (different shapes and sizes) 5 sticks (different lengths)
15	egg cartons
	posters of workers using 5 senses
	wind-up toy
4	charts 2 labeled "Living" - c 2 labeled "Non-Living" - c
4	charts 2 labeled "Plant" - c 2 labeled "Animal" - c
1	book - I Am An Animal
1	aquarium with light
	sand - enough to cover bottom of aquarium and terrarium - c
1	pkg. plant nutrient - c
1	medicine dropper
1	pkg. guppy food
2	gallon plastic container with lid
	few charcoal pieces - c
1	roll plastic wrap
6	pkgs. mung bean seeds - c
50	plastic glasses
15	small magnifying glasses
20	pieces blotter paper cut in 3" x 6" pieces - c
1	small pitcher, watering can, or bottle
	pictures of scientists at work
1	silk worm case
1	piece wool (uncarded if possible)
1	cotton ball
1	piece leather
2	pkg. salt - c
5	pounds flour - c
1	pkg. wheat seeds
1	small bottle cooking oil - c
	felt figures
60	paper sacks - lunch size - c
60	large pipe cleaners - c

THINGS TO ORDER

Earthworms
Anacharis
Eelgrass
Duckweed
Guppies - 2 male, 2 female
Snails
Chlamydomonas
Plants for terrarium
Crickets
Daphnia
Films
Light for plant experiment (if needed)

TEACHER OBTAIN (Includes all materials needed for suggested extra activities)

1 book - Bartholomew and the Oobleck - Dr. Seuss
bowl - 2 quart size
1 mixing spoon
1 one cup measure
a variety of objects for children to sort acording to shape, color, feel, taste, smell or sound. Examples:

orange
potato
Lemon
wooden block
can with rock in it
ball
piece of colored paper
pencil
stick
button
piece of sand paper
piece of fabric

scissors
paste
magazines
crayons for each child
a wooden board at least 12" x 24" x 2"
several paper sacks, any size
a blind fold
containers for mud pies (small foil pans would work)
dirt and/or sand (for mud pies)
books - Mud Pies and Other Recipes - Winslow
Look Again - Hoban
any small animal (classroom pet, pet from another classroom, student's pet)
plant - any house plant
felt pen
an old aquarium or large glassjjar (do not use the aquarium in the kit as you will need it later)
forest or garden soil to fill above aquarium
dark cloth or black construction paper
lettuce, cereal, corn meal
pictures of plants - should be of single objects such as 1 plant
pictures of animals - should be of single objects such as 1 animal
large piece of blue paper - background for mural
construction paper - various colors
soil - woods or garden soil containing humus - you will need this for the terrarium and for planting seeds. If you cannot get it, you may order it.
small rock
stick
small container for water (a lid will do)
masking tape

1/2 pint milk cartons cut down to 1" (to be used as trays for plants)
large jar with cover (such as large paste jar)
drawing paper
paper for posters
dittos (use Pak drawings to make ditto master#
animals for terrarium
shovel
lunch - sandwich, carrot sticks, apple, cookie
silk scarf
ingredients and utensils to make cookies, etc.
large paper grocery bags - for children who didn't bring them
shoe boxes
pieces of cardboard same size as end of shoe box
small boxes such as aspirin and tea boxes
glue

BOOK LIST

True Book of Trees - Podendorf
True Book of Plant Experiments - Podendorf
True Book of Insects - Podendorf
Numbers of Things - Helen Axenbury
Over in the Meadow - Keats
Seeds and More Seeds - Selsam
My Tree - Stark
A Tree is Nice - Udry-Simont
Snail, Where Are You? - Ungerer
The Good Bird - Wezel
Birds - Wildsmith
Mud Pies and Other Recipes - Winslow
Owl and Woodpecker - Wildsmith
Animals Should Definitely Not Wear Clothing - Barrett
My Tree - Carrick
Look Again - Hoban
Inch by Inch - Lionni
Wet and Dry - Simon
Seasons - Burmighan
Who Has Seen the Wind? - Conger
I Caught a Lizard - Conklin
Just Me - Ets
The Green Grass All Around - Hoffman
Everything Changes - Howell and Strong
Patterns of Nature - Baker
The Carrot Seed - Krauss
The Little Island - MacDonald
Rain Makes Applesauce - Scheer
It Looked Like Spilt Milk - Shaw
The Dead Tree - Tresselt
Under the Trees and Through the Grass - Tresselt
Voices of Man at Work - LaRue

FILMS

Treehouse - (King Screen-1969) Poses the question of whether or not man can live in the world without obliterating its beauty.

What Do They Eat? - (EBE-1972) Shows that animals rely on a variety of plants and other animals for food; establishes examples of the food web relationships between life forms; demonstrates the dependence of some young animals on their parents for food and protection. WONDER WALKS series.

Let's Find Life (EBE-1972) Emphasizes that living things can be found in a variety of ways and in a variety of places. WONDER WALKS series.

TV

Channel 9 "Working Together" - particularly lessons 3, 6, 7, 9, 10, 11, 12, 14, 20, 28. Some of these are available on closed circuit. Check with Bob Wiley, 433-2315.

LESSON 1

CONCEPT: Introducing the word "environment"
We find out about our environment by using our five senses.

MATERIALS: Key: *teacher obtain +teacher order

explorer hat
picture of astronaut
five senses wall chart
*book - Bartholomew and the Oobleck - Dr. Seuss
2 packages cornstarch
*water
vinegar
green food coloring
small paper cups
*bowl (2 quart size)
*mixing spoons
*1 cup measure

For suggested extra activities
*a variety of objects for children to sort according to shape, color, feel, taste, smell, or sound that they make. Examples:

orange	piece of colored paper
potato	pencil
lemon	stick
wooden block	button
can with rock in it	piece of sandpaper
ball	piece of fabric
bell	

*a ditto sheet of oobleck recipe - 1 for each child

PROCEDURE: Put on explorer hat.
Who would wear a hat like this? (an explorer)
What does an explorer do? (looks for things, finds out about things, etc.)
Show picture of astronaut.
Is he an explorer? Where does he explore? Why?
In school we're all explorers. Where do you think we're going to explore? (all around us, outside, Africa, etc.)
Yes, we'll explore everything right around us. That's called our environment. Write the word "environment" on chalkboard. Although children cannot read it, they like to see it written.
What are some things in our environment?

How does an explorer find out about things? (walks, looks, etc.)
If answer is "shoots", distinguish between a hunter (looking for animals to kill) and an explorer (trying to find out about things).
An explorer finds things and leaves them there. We're explorers.

What will we use to find out about things. Will we use our eyes?
Point to eyes.

What else? (hands, ears, nose) Point to each part of the body as it is mentioned. *Would we use our tongue? How? We call this way of finding out about things using our senses.*

Show senses chart. As you point to the pictures, say *We have a sense of smell,* etc. Write "smell" etc., in the box beside the nose, etc.

How many senses do we have? Let's count them.

Now I'm going to give each one of you a chance to explore your environment by using your senses. Each one of you walk around the room which is part of our environment, and find something using one or more of your senses. Leave it there, but remember what it was and what you used to find out about it. Then come back and sit in the circle.

Give children a few minutes. When all are seated again, ask as many as possible, *What did you find? What did you use to find out about it?*

You are good explorers. Now I'd like to read a book about a different environment from ours. Tell "Bartholomew and the Oobleck" as you show the pictures in the book.

What did they have in their environment? (oobleck) *How did it smell? How did it look? Taste? Did it make a sound? How did it feel?* Children will not be able to answer all these questions from listening to the story.

Let's make some oobleck so we can find out about it using our five senses. See recipe. As you make it, talk about each ingredient - the amount, the appearance, the smell, etc.

Give each child a ball of oobleck in a paper cup. Let children examine, play, experiment as they wish. After a length of time ask questions such as:

EVALUATIVE ACTIVITY:

How does it smell? taste? feel? look? sound?
What happens when you poke it? drop it? squeeze it? rub it?

SUGGESTED EXTRA ACTIVITIES:

Sort objects according to one property identified by sense of smell, touch, hearing, sight, taste. Children may want to explore objects, but not sort; this is a worthwhile activity also.

Play with oobleck

Take home copy of oobleck recipe

Oobleck (enough for 30-35 students)

2 packages cornstarch - pour into bowl
2 cups water with green food coloring added
1 cup vinegar

Add green water and vinegar to cornstarch. Mix all ingredients with spoon or fingers. If it seems too dry, add a little more water.

AAAS (Science, a Process Approach)

Observing (texture)
Observing (taste)
Observing (smell)

Play "What is (Child's Name) Like?" After looking at each other carefully, two children stand back to back. One child says what color the other child's socks are (without looking). If correct, he gets to say what color his hair, etc., is. When he misses, the other child gets a turn. Try to see that all children get a turn sometime during the next few days.

NOTE TO TEACHER:

It would be best to mix the oobleck in front of the children during class. However, if this is not practical, you may mix it the day before. If you do, cover it with plastic. I refrigerated mine, but I'm not sure you would have to do that. You may need to add more water before the children use it. Have fun!

LESSON 2

CONCEPT: We find out about our environment by using our senses.

MATERIALS: Outdoor classroom (see notes to teacher at beginning of Pak and in this lesson)
*activity sheet 1 - one per child
*paste
*scissors
*small pictures from mimeographed sheet 1a
*magazines

For suggested extra activities
*paper sacks
*objects used on first extra activity in lesson 1
*blindfold
posters of workers using 5 senses
*additional copies of activity sheet 1

NOTES TO TEACHER: As you take the children on trips to their outdoor classroom, encourage them to start noticing things as soon as they get outside. Be as free as possible about going in lines, staying with partners, etc. The important activity for each child is his own process of discovery.

Instead of trying to talk with all the children at once, move around them, listen, encourage, suggest, hint, but try to avoid giving too much direct information. Let them discover it!

Make sure there are opportunities for listening. Keep up <u>your</u> enthusiasm - have fun - make some discoveries yourself!

PROCEDURE: *Remember yesterday how we explored the things around us? What word did we use for everything around us?* (environment) *What did we use to explore our environment?* (our five senses) *What are our five senses?*

Today we're going to explore a different part of our environment. We are going outside to explore. We'll use our senses as we did yesterday although we'll need to be careful about what we taste. You probably will need to impose some restrictions on tasting, such as checking with you first.

We have rules for our indoor classroom and also there are some rules we need to remember to be good explorers in our outdoor classroom.

As you give rules, write down on chalkboard.

1. *Explore without destroying. Why?* Accept all answers.
2. *After looking, touching, smelling something, put it back where you found it.* Write down "put things back". *Why?*
3. *If you turn rocks or logs over, roll them back before you leave. Why?* Refer to item Put Things Back previously written.
4. *Leave plants, branches, etc., growing where they found them.* Write "leave plants where we find them." *Why?*

Children may need to be reminded of these rules, especially at first. However it is most important that they leave the environment as they found it. We want to study a natural environment, not one changed by man.

Now we're ready to go exploring. Try to remember as much as you can about what your senses tell you. You will take the board with you. Put it down over plants, etc. in the middle of your outdoor classroom. As you cover some plants, you will change the environment. Let the children see you put it out, but the board should be left alone until Lesson 9 when children will be able to observe changes.

EVALUATIVE ACTIVITY:

Back inside the classroom, hand out activity sheet 1, paste, mimeographed pictures, magazines and scissors.

Try to remember what your senses told you about the environment. On your paper there is a row of boxes beside the picture of the nose. In that row of boxes paste pictures of some of the things you smelled when you were outside. You may use these pictures which are already cut out or you may look through the magazines to fine small pictures of things you discovered with your nose.

Continue to give specific directions for each row. Children should be encouraged to make at least one picture for each sense, but they should not be pressured to do this. Here are some possible responses children could give.

smell -	air	flowers		grass	
	cars	garbage can		tree bark	
hear -	traffic	airplanes		footsteps	
	birds	talking		dripping water	
touch -	buildings	tree bark	rocks		wind
	cars	leaves	plants		sun
see -	everything!				
taste -	water	air	grass	dandelion leaf	

If there is time there could be discussion on what different children discovered.

SUGGESTED EXTRA ACTIVITIES:

Using objects in first extra activity in lesson 1, one child puts object in a bag while other child is not looking. Second child then guesses by smell, touch, or sound what is in bag.

Blind Man's Bluff

Discussion of posters of workers using 5 senses. Use question such as: *If you were a cook, what senses would be especially important to you?*

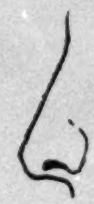
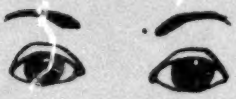
"Work Jobs" game - match pictures from magazines of people using senses to sense they are using on activity sheet 1.

TEACHER REMINDER:

Make sure you have materials available for Lesson 4.

ACTIVITY SHEET 1

What I found by using my

 NOSE			
 EYES			
TONGUE			
EARS			
HANDS			

LESSON 3

CONCEPT: We find out about our environment by using our senses.

MATERIALS:

Set of 5 buttons (different colors)
Set of 5 beans (different kinds) — For each two children
Set of 5 shells (different kinds)
Set of 5 rocks (different shapes and sizes)
Set of 5 sticks (different lengths)

1 egg carton for each two children
Plastic sacks to hold sets of objects

Materials for suggested activities
*containers for mud pies (small foil pans would be good)
*dirt and/or sand
*water
*books - Mud Pies and Other Recipes by Winslow
Look Again by Hoban

PROCEDURE: Hold up a shell. *Using your five senses, what can you tell me about this?* Accept any answer but try to encourage shape, color, marks, kind, texture, use, material, habitat, smell, taste. Repeat this procedure with button, bean, rock, stick. Be sure you are an example by using your ears, etc. to examine the objects.

Now we'll play a game with these objects. I'll give each two people a set of the objects and an egg carton to put them in. Each person will use his senses to find out about the objects. When I give the signal (bell, whistle, or chord on piano), *I'll tell you the next part of the game.*

Give the children a few minutes to explore the objects, then signal for quiet.

One person will sort the objects, put all the objects that are the same in some way in one section of the carton, while the other person watches. When one other person figures out how they were sorted, he has a turn to sort them a different way. You probably will need to demonstrate. When you do, choose a property such as texture. Try to make sure each person gets a chance to sort the objects at least once.

If you feel your students are not ready to take turns in sorting the objects, suggest they work together after deciding how they will sort them.

Talk with each group about their basis for sorting. Then suggest a different way. Accept anything and everything. For more immature children, you may have to suggest a property for sorting such as color or kind and even start them.

You did very well at that game. We'll put the objects back in the sacks and if you would like to play it later, you may.

EVALUATIVE ACTIVITY:

Your observation of how accurately the child is able to sort the objects according to a property of his choice and how accurately he can pick out the property used when another sorts them.

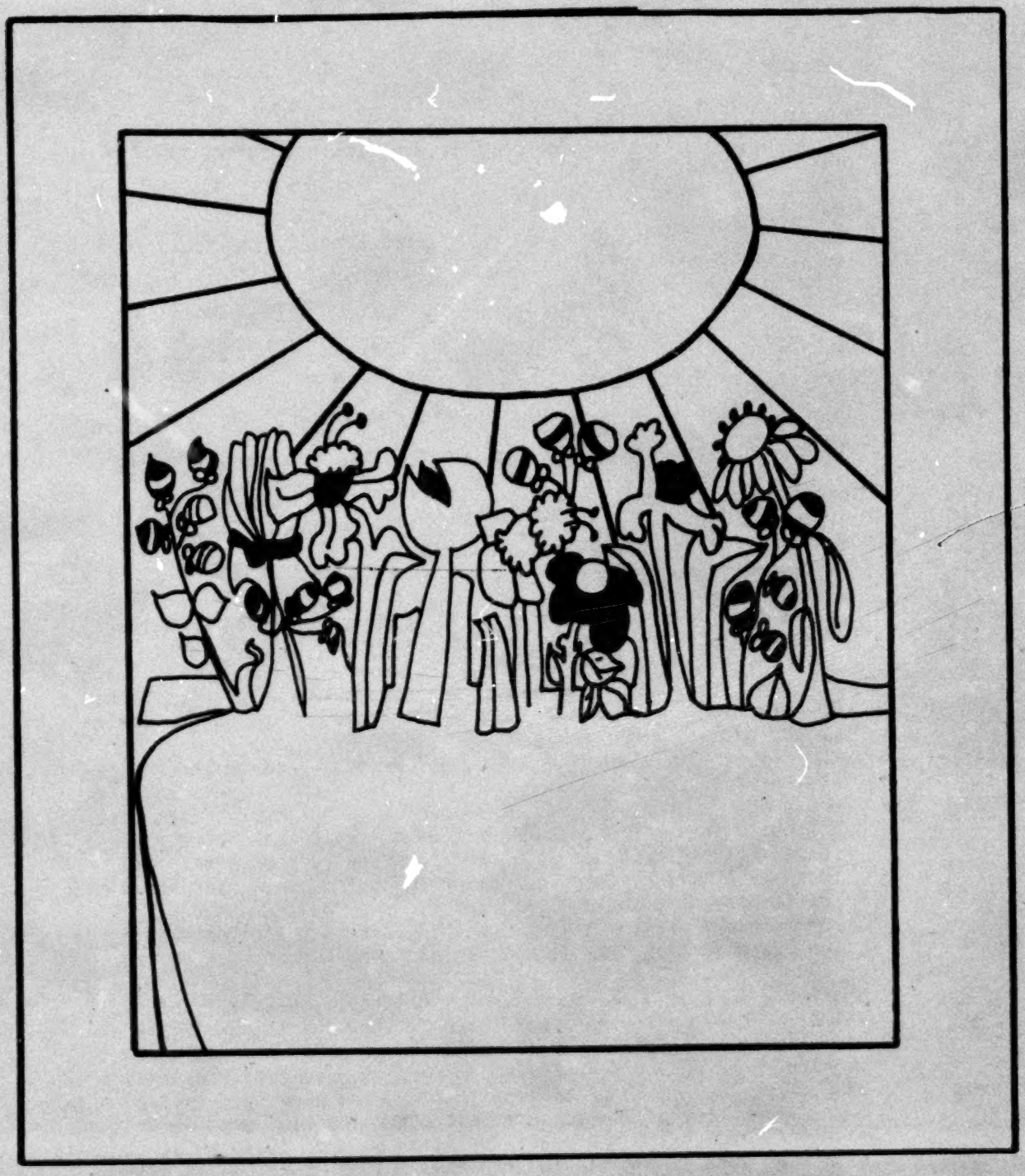
With a large class, you may want to use a mother helper or older student to assist in giving suggestions, and evaluating performance.

SUGGESTED EXTRA ACTIVITIES:

Make mud or sand pies outside. Children may decorate pies with objects used in lesson. Let children experiment with amount of dirt, sand, and water. Leave pies in sun and wind to dry, if possible. Discuss changes or lack of changes when children come back next day.

Good books - Mud Pies and Other Recipes - Winslow
Look Again - Hoban (very good for observation)

AAAS - Classifying 1



LESSON 4

CONCEPT: Our environment is made up of many different things, some living and some non-living.

MATERIALS:

Rock - from Lesson 3
*earthworm
wind-up toy
*any small animal (classroom pet, pet from another classroom, student's pet)
*plant
*book
*chair
*chalkboard ("Plant" and picture of plant, "Book" and picture of book on chalkboard)
2 charts - one labeled "Living"
one labeled "Non-living"
*felt pen
*crayons
*copy of activity sheet #2 - one for each child

Materials for extra activities
*old aquarium or large glass jar (do not use the aquarium in the kit. You will need it later.)
*forest or garden soil
*earthworms (may be ordered)
*dark cloth or black construction paper
*lettuce, cereal, cornmeal

PROCEDURE: Have materials for this lesson on science table or where children are able to observe them informally before the lesson starts.

Did you notice we had some things up here? Hold up plant and book. *Tell me something about the plant.* Record responses on the chalkboard under "Plant".

Tell me something about the book. Record responses on the chalkboard under "Book".

How are they different? Record responses in the appropriate list. If child says, "The book doesn't have leaves" make sure you have "leaves" on plant list, and then record "no leaves" on book list. If children do not bring up the living and non-living difference, say *Could we say the plant is living and the book is non-living?* Write "living" on the plant list and "non-living" on the book list. Explain that "non" means "not."

Now let's look at these two things. Hold up wind-up toy and small animal. *Which is living? Non-living?* Show charts "Living" and "Non-living". *This time we'll write things about the animal that we think make us say it's living on this chart.* Indicate "Living" chart. *The things about the toy that make it non-living we'll write on the "Non-living" chart.* Use felt pen. You will get comments on movement, accept the children's decision on what to do about it. Ask questions such as *Can the toy move by itself? What has to happen first? Can the animal move by itself?*

If there is time, it would be best to compare the rock and the worm and/or the chair and the child. However if this is not possible, try to fit in another time. Keep the "Living" and "Non-living" charts up for the rest of the unit so that when the occasion arises, the children may add or take away characteristics as they become more experienced.

Now we can see some differences between living and non-living things. Read charts. *We'll keep these up and as we explore our environment maybe we'll find things we want to put on our charts or change.*

Now each person will have a turn to walk over and touch something in our room. They they will tell us if it is living or non-living. If you aren't sure, we'll all try to decide by remembering what we put on our chart. Make sure each child has a turn.

EVALUATIVE ACTIVITY:

Draw a circle around the picture of each thing that is living. If it is non-living, do not draw a circle around it. Do the first two or three pictures together. When you are sure everyone understands the directions, say *Finish the page by yourself. When you are finished, show it to me.*

If you go over the papers while the children are in a group, you could ask children to clap hands, stand up, etc. when living things are mentioned and to sit still for non-living things.

As you discuss each child's paper with him, ask him why he circled one or two items and why he didn't circle one or two items. Accept his reasons even though they may be different from yours! Note them and if you feel they are significant, teach to correct them in future lessons.

SUGGESTED EXTRA ACTIVITIES:

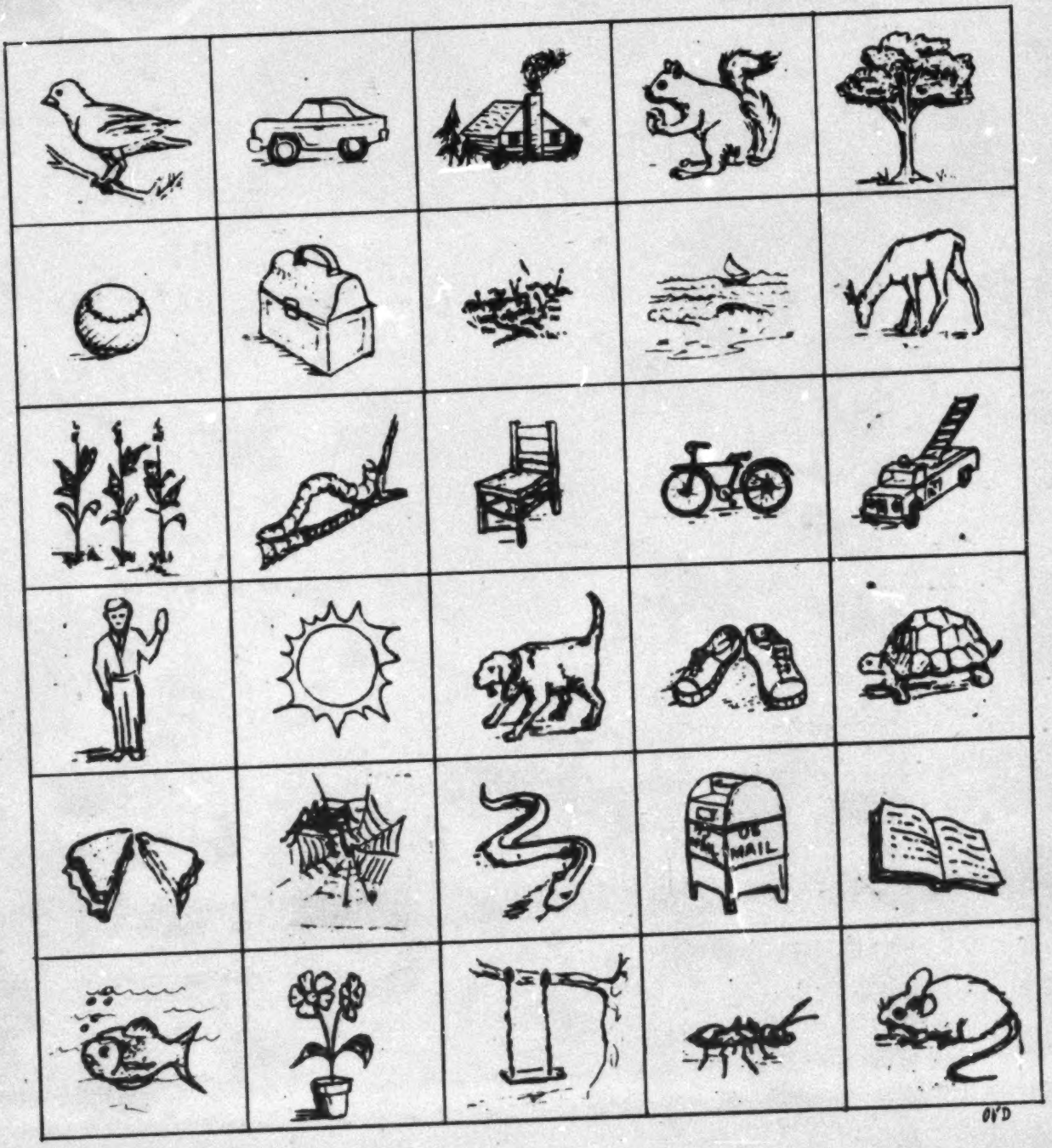
Children pretend they are various living and non-living things.

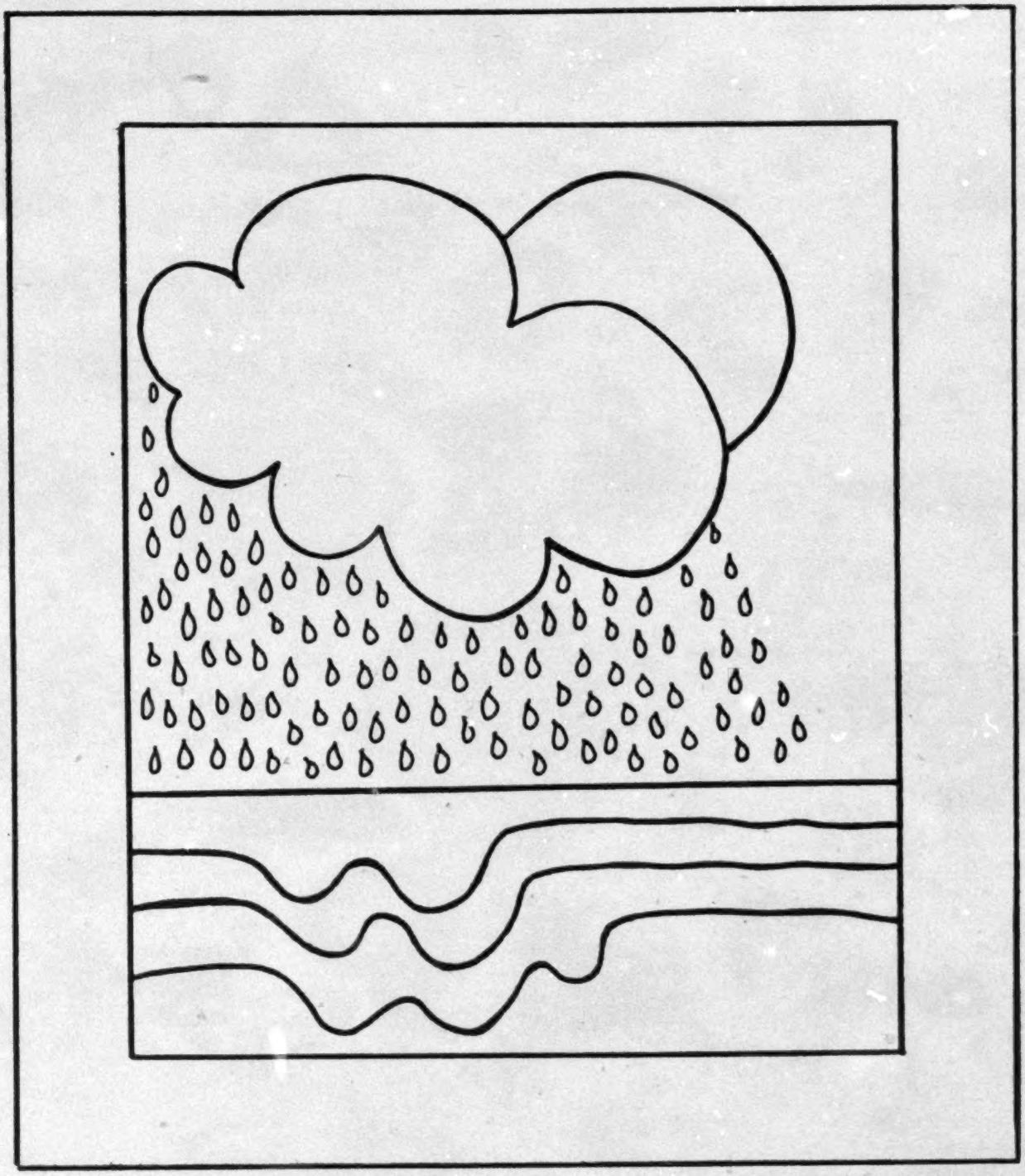
Sort living and non-living things in the classroom.

Make an earthworm farm. Fill to within four or five inches from the top an old aquarium (or large glass jar) with forest or garden soil. Let the children put the earthworms into the farm and watch them burrow down into the soil. Completely cover from bright light (use cloth or black construction paper) or put in a dark place. This should accelerate burrowing. Keep covered when you are not watching the worms, and give them fresh food every day (lettuce, cereal, cornmeal). Add some moisture to the soil frequently. Questions to ask: *Why do earthworms choose soil for their homes? How do earthworms move through soil? What kind of soil is best for earthworms? Why don't earthworms live in sand?*

Film: "Let's Find Life". An excellent film in color about exploring our environment. It emphasizes leaving everything as you found it. 8 minutes.

CIRCLE THE PICTURES OF THINGS THAT ARE LIVING





LESSON 5

CONCEPT: Our environment is made up of many different things, some living and some non-living.

MATERIALS

*objects used in PROCEDURE in Lesson 4
outdoor classroom
"Living" and "Non-living" charts
*activity sheet #3 - copy for each child
*crayons

Materials for extra activities
*Film - "Let's Find Life"
Aquarium (will use for preparation of Lesson 7)

PROCEDURE:

Remember yesterday we talked about living and non-living things in our environment? Point to things used. *And we found out some important ideas about living things and non-living things.* Read charts.

Today we're going to our outdoor classroom. We will be discovering many things, some living and some non-living. Try to find as many things as possible. Review rules for trips to the outdoor classroom - see Lesson 2.

As the children are searching, they will find some things, such as a fallen leaf, which are questionable about living and non-living characteristics. Help them recall what the class decided when they made up the charts. Then let them decide which group it belongs in. Use the word "dead" only for those things that were once living. Help them to become aware of sun, air, rain, wind, etc., as part of our environment. Remember to encourage the use of all senses.

EVALUATIVE ACTIVITY:

Back in classroom hand out activity sheet #3 and crayons. *Make pictures of all the living things you discovered on this side of your paper.* Demonstrate. If you think this would be confusing, you could have 2 colors of paper - 1 for living and 1 for non-living. *Bring your paper to me when you finish and I'll write the names of the things you have drawn under their pictures.* If there is not time for labeling, ask the children to name some of the things they have drawn. Accept the child's classification.

SUGGESTED EXTRA ACTIVITIES:

Film - "Let's Find Life" if not viewed yesterday.

NOTE TO TEACHER:

In preparation for Lesson 7, rinse the aquarium with clear water (no soap) and fill 3/4 full with tap water. Mark the level of the water with a crayon so you will be able to add water and keep it at that level. It should stand at least 48 hours before you place any organism in it. When tap water is exposed to air this length of time, the chlorine content is reduced below the level harmful to organisms. If possible, also, put tap water in another container. Then you will have a supply of aged water to add to aquarium as needed.

LIVING

NON-LIVING

ACTIVITY SHEET #3

LESSON 6

CONCEPT: Some living things are plants and some are animals

MATERIALS:

Outdoor classroom
plant chart
animal chart

Materials for extra activities
*pictures of plants - should be of single object such as 1 plant
*picture of animals - should be of single object such as 1 animal
*large piece of blue paper
*construction paper - various colors
*paste
*scissors
Book - "I Am An Animal"

PROCEDURE:

Today when we visit our outdoor classroom we are going to examine all the living things very carefully. We want to discover which are plants and which are animals. I wonder - what things are true about all plants? About all animals? Let the children discuss this as they are getting ready to go out, but do not draw any conclusions at this time.

While outside, encourage close examination of plants and animals. Insects, worms, etc., may be in or under logs. Birds may be in brush or trees. Occasionally a snake, snail or rodent may be discovered. Ask questions such as:

How much of our outdoor classroom is covered with plants? Do you see any animals? Any signs of animals? Holes in ground? Parts of animals? Where animals have been chewing? Any fur or feathers? Any spider webs? Anything trapped in the web? What do you see in the trees? Under the trees? Use many spatial words such as "in, beside, around, over, under", etc.

Back in the classroom, *What plants did you find?* (list on chalkboard if possible) *What animals did you find?* (list. Try to bring in idea of people as being part of animal kingdom.)

Tell me about plants. Tell me about animals. What are some differences between the plant and the animal? We'll write them on these charts that say "Plant" and "Animal". Proceed as you did in Lesson 4 when the children suggested differences between living and non-living things. *We'll keep these charts up in our room too, so we can add to them and change them when we need to.*

SUGGESTED EXTRA ACTIVITIES:

Sort pictures of plants and animals into groups.

Start mural of ourdoor classroom. Keep this up and children will add to it as they discover more things. Start with basic ground of blue paper. Let children direct where you put brown paper for the ground. Children may cut trees, bushes, grass, children, logs,

rocks, animals, etc. from construction paper and paste on mural. The mural could be labeled "Our Environment" or whatever children choose.

Try to elicit discussions on how long various things in our environment take to grow to maturity again including children.

TEACHER NOTE: Get small milk cartons to use on Lesson 8.

LESSON 7

CONCEPT: Plants and animals depend upon the non-living in their environment.
Plants and animals depend upon each other in the environment.

MATERIALS:

\+ teacher order * teacher obtain

Outdoor classroom
aquarium (3/4 full of aged water)
+chlamydomonas
+anacharis
+eelgrass
+duckweed
+guppies - 2 male, 2 female (keep hidden from children until ready to use them)
+snails
plant nutrient
medicine dropper
guppy food
light for aquarium
2 gallon plastic container with cover
*soil - woods or garden soil containing humus
charcoal pieces
*plants for terrarium (mosses, ferns, others)
*small rock
*small container for water (lid will do)
*stick
plastic wrap
*Film - "What do They Eat?"

If these specific plants are not available, it is very possible to substitute others. When you order, check on names and characteristics of any substitutions.

BACKGROUND INFORMATION:

Anacharis (a-NACH-a-ris) - grows in ponds and slow streams, long stems, few branches, leaves on branches, grows while floating, snails often live on leaves.
Eelgrass - grows at edge of ponds, etc. has ribbon-like leaves, fish and other animals eat it, in aquarium, propogates by runners.
Duckweed - tiny flowering plant, single frond (leaf-like structure) with one or more trailing roots, fish, snails, and water birds eat it.
Water snails - small ones sometimes hang from surface film of water, large soft part is foot, used for locomotion, head in front of foot has two tentacles, eyes are near base of tentacles, mouth on lower surface of head, rasplike tongue is mouth which scrapes food. Most eat plants, but some eat dead plants and animals.
Guppies - native is island of Trinidad and northern South America. Female is larger, grayish, has fan shaped anal fin (on the bottom near tail). Male is smaller, often brightly colored, anal fin is thickened, pointed, and tube-like (sperm passes through tube into female). Eat dried fish food, Daphnia (water fleas), mouth is on upper part of head so can eat food floating on surface.
Chlamydomonas (klam-u-DOM-o-nas) - single celled plant in group called algae, reproduces by dividing in two, eventually causes water to become green.

PROCEDURE: *Today we'll go to our outdoor classroom to see if we can discover what plants and animals need to live. Could you guess what they might need?* Accept all answers and discuss what they might need as you are going. Be sure to ask what <u>people</u> need sometime during this lesson.

How will we find out what they need? (start by looking where they live) *Yes we'll look in each thing's habitat, where he lives.* Ask questions such as: *Do plants eat food? Where do they get it? What color are most of the plants? Are all the plants attached to something?*

What does a spider eat? Where does he get it?
What does a fly eat? Where does he get it?
What does a bird eat? Where does he get it?
What does a tree eat? Where does it get it.

Ask about things you see.

Do things need anything besides food? What else?
Where would they get it?
Where are the most plants growing? Why?
How do animals need plants?
How do plants need animals?
A simple discussion of O_2 and CO_2 could take place in this lesson.

Back in classroom. *We've been talking about our environment. Now we're going to fix up one kind of environment in our classroom.* Indicate aquarium. *This is an aquarium. What is in the aquarium already? Is water a living or a non-living thing? Now we'll rinse some sand to put in the bottom. Is sand living or non-living?* Rinse sand in a bowl until there is no dust or debris in the water. Be sure to save some for the bottom of the terrarium. *We'll put the sand in the aquarium.*

Are there any kinds of plants that grow in water? We have some to put in the aquarium. This plant is called Anacharis. Pass it around so children can examine. Then put in water. *Where does it go?*

And this is called eelgrass. Pass around. *Since it has roots, we'll poke the roots gently in the sand.* Do this. *This funny plant has a funny name - duckweed.* Pass around. *Where does it go when I put it in?*

Now we have some living things, plants, and some non-living things, sand and water, in our aquarium. But what about animals? What animals live in this kind of environment? Right - fish. These fish are called guppies. As you pass these around, allow enough time to observe carefully. Ask such questions as: *Are all the fish the same? How are they different?* Indicate which is male (father fish) and which is female (mother fish). *How do they move? Do they have a mouth? Do they have ears like people?* Put in aquarium.

We have one more kind of animal to put in our aquarium. Could you guess what it would be? When someone says "snails", show snails. Pass around and ask questions such as: *How do snails move? Do they have a front and rear end? Do they have a mouth" ears? eyes?*

Put snails in aquarium.

What will our plants eat? You should indicate here that plants will make their own food in their green leaves. *Since we want to make sure our plants get what they need from the water to make food, we'll put some extra nutrient or minerals in the water. That will help the plants grow well.*

Place about 20-25 drops of nutrient in the water, or number of tablets recommended on package.

What will the guppies and snails eat? (plants) *We'll give them a little pinch of fish food every day, too. But not too much because that would change their environment too much.*

Everyday when you come to school, be sure to look at the aquarium and see what changes have taken place. From now on, you will need to allow a few minutes each day for children to freely observe. This should be an informal type of observation. Some of the things the children should notice are:

1. birth of guppies
2. appearance of snail eggs
3. perhaps death of an organism
4. changing water color
5. gradual accumulation of organic matter (detritus) on the sand.

Further discussion of these events can be found in Lesson 9.

Place the light on the aquarium. If using the light is not convenient, put the aquarium close to a window. This should promote birth of babies and growth of algae. Do <u>not</u> clean aquarium. You want children to notice increasing green color of aquarium.

After children are gone, shake the Chlamydomonas culture to insure that the algae plants are distributed equally throughout the liquid. Then pour into aquarium.

You do not have to start the terrarium at this time, but it should be started before you go on to Lesson 8. Also, see notes to teacher at the beginning of the Pak if you have two classes of kindergarten.

Now let's fix up another environment, a different kind from our aquarium. Take plastic container. *First we'll put some sand in the bottom.* Do this. *Is that living? No. In this environment, called a terrarium, the sand will help store or keep the water. Then we'll mix a little charcoal in the sand.* Do this. *That will help to keep the soil good. Is charcoal living or non-living? Where does it come from?* Help children understand it was once living (tree) but is now dead.

Next we put in the soil. Add soil about 3 or 4 inches deep over the charcoal and sand. *This soil came from the woods (garden). I wonder - is it living or non-living?* Much of it came from living things (leaves, remains of insects) so some of it is dead material.

Remember we put water in our aquarium up to here. Indicate. *But we're not going to do that with our terrarium. So what is in here?* Put your hand in space above soil. *Right, air. Living or non-living?*

Now I think we need a stick and a rock. Put these in. *It's beginning to look a little like our outdoor classroom. But what does it need? Oh, plants.* Put plants in without over crowding. Put moss on soil.

We'll put this little lid of water down in the soil; it will be like a little pond. Sink lid down in dirt and moss. *And we'll sprinkle some water over our plants like rain. Then we'll cover it with plastic wrap and the lid.* Snap the lid down over the lid. *And there is our terrarium.* Place the terrarium away from direct sunlight where the children can observe it easily. *Every day you'll want to observe the terrarium and see what is happening. Another day we'll put some animals in it.*

Things children could observe:

1. growth of the plants
2. the "rain" in the terrarium (condensation)
3. the fact that we do not need to add water

You may want to order crickets for the terrarium. Other animals which can be found and which could probably do well are snails, grasshoppers, frogs, lizards, beetles, caterpillars, spiders. If children bring animals, keep them for a few days and then have the children take them back and put them where they found them.

During this lesson and as children make observations, encourage comparison of ages of children, plants, animals, parents, buildings, etc.

SUGGESTED EXTRA ACTIVITY:	Film - "What do they Eat?" - very realistic pictures of eating habits of animals. Color. 5 minutes.
NOTE TO TEACHER:	You may want to get some extra help (mothers, older children) for the next day's lesson, Lesson 8.

LESSON 8

CONCEPT: Plants and animals depend upon the non-living in their environment. Plants and animals depend upon each other in their environment.

BACKGROUND INFORMATION: A mature seed contains a small plant embryo plus a stored food supply within a protective cover. The embryo plant uses up the food supply as it grows into a "seedling". If the seed has been planted in soil, the seedling grows into the air and light above ground, and under favorable conditions, will manufacture a new food supply to support its continued growth. The cycle is completed when the mature plant produces flowers and finally seeds.

Plants need minerals, water, air, and light in order to remain healthy and to complete their life cycles. Minerals and water that are present in the soil are taken up by the plant roots. Air passes into plants through tiny pores in the leaves. Light is supplied by the sun.

MATERIALS:
mung bean seeds - 2 for each child (mung beans germinate quickly)
plastic glasses - 1 for each 2 children
*soil
small magnifying glasses - 1 for each 2 children
blotter paper cut in 3" x 6" pieces
*masking tape
small pitcher or watering can
*small milk cartons cut down to 1" from bottom (will be used as trays for glasses)
pictures of scientists at work

NOTE: If there is not much light available in your room, it is possible to order a light with a reflector shade from Kathy Daws, 2528.

PROCEDURE: *Remember how we planted the plants in our terrarium yesterday? What non-living things did we put in?* (sand, dirt, water) *And what was in there although we couldn't see it?* (air) *Did we put our terrarium in the closet? Why not?* Needed light. *So what are the things we think plants need?* Write "What we think plants need" on the chalkboard and list things children tell you under this. If they tell you something besides dirt, air, water, and light, you may need to adjust conditions in the following experiment to prove or disprove this.

Discuss pictures of scientists.
Today we're going to be scientists trying to prove what we think is true. We'll do this with an experiment with seeds. When you are in groups of two (see teacher notes at beginning of study) *I will give each group a plastic glass, four mung bean seeds, and a magnifying glass. I want you to examine the seeds carefully.* Encourage the use of all senses, including taste. However, caution not to swallow. *What did you find out?* (little, hard, greenish color, round, smooth, little marks on it, smells, doesn't smell, tastes good, tastes awful, etc.) *Good, you really know how to find out about things now, don't you?*

Remember we were going to experiment to prove what we think plants need. So you and your partner will need to decide which way you are going to plant your seeds. These are the different ways you could do it. Demonstrate and write on the chalkboard each way. Children should not decide until you have given all the ways. Then let them choose, but each set of children must agree on the one way they will plant their seeds.

Ways of planting seeds:

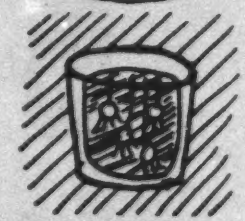
1. seeds, no soil, no water

2. seeds between moist blotting paper and inside of glass

3. seeds planted against inside of glass with 3" of soil in glass. Do not water.

4. seeds planted against inside wall of glass with 3" of soil. Water level continually kept at soil surface.

5. seeds planted against inside wall of glass with 3" of soil. Water when soil feels dry to touch. Put in dark closet or under box.



6. seeds planted against inside wall of glass with 3" of soil. Water when soil feels dry to touch. Put in light and leave open to air.

Talk it over with your partner. Decide which way you will plant your seeds. Then come and tell me. Record names beside conditions they have chosen. This will help you discourage a change of mind halfway through the experiment. However, if a group wishes to plant other seeds differently later, they should be

allowed to freely experiment. *Then plant your seeds the way you decided.* Have all materials available. Let children do as much as they can themselves. However, you may want to have extra help.

If all conditions are not represented, you should plant seeds under the other conditions. *Put your glasses in these cartons so the window sill* (or wherever you are putting the plants) *won't get messed up. We'll write your names on masking tape and stick that to the glass.* Do this.

After all the groups have planted their seeds, review conditions and make sure children understand what is lacking in each glass.

1. no food or water
2. plenty of water, no food
3. plenty of food, no water
4. plenty of food and water, no air because soil is not draining and allowing air to enter soil
5. plenty of air, food, water, no light
6. right amount if air, water, light, food

Be sure to check your glass every day to see what is happening. If you are supposed to water it, be sure to do that. More information and discussion questions are included in Lesson 9.

SUGGESTED EXTRA ACTIVITIES:

Keep a chart of plant growth.

Cover plants with plastic after they are growing well.

Other experiments with plants which children may want to try. The True Book of Plant Experiments by Podendorf may help.

Bring other kinds of seeds to class. Use Seeds and More Seeds by Selsam.

LESSON 9

CONCEPT: Plants and animals are affected by their environment and adapt to it. These changes usually take place slowly. Plants and animals die and become another part of the environment.

NOTE TO TEACHER: Lesson 9 and 10 depend upon changes which have taken place in the outdoor classroom, the aquarium, terrarium, seed plantings, and worm farm if you have one. If not much change has taken place, you may want to go on with Lessons 11 and 12 and then come back to these lessons.

MATERIALS:
outdoor classroom
*large jar with cover (such as a large paste jar)
*drawing paper
*crayons

Materials for extra activities
+crickets
*other animals for terrarium
+Daphnia
*shovel
*Wet and Dry by Simon
*Everything Changes, Howell and Strong (available at Burien Library)

PROCEDURE: *Have any changes taken place in our aquarium?* Could be baby guppies, snail eggs (yellowish, transparent spheres, each are size of pin head, clustered on sides of aquarium and plants), very tiny snails, dead plants, fish or waste materials from organisms, green water.

Any changes in terrarium? Could be bigger plants, some plants dying, water on top and sides.

Any changes in bean seeds? A good time to go over which seeds grew, which grew best, and why.

Any changes in you? (different clothes, hair cut, can do more things, can do same things better, have grown)

We're going to our outdoor classroom today. I wonder - do you think everything will be exactly the same as it was the first day we went there? Why things might be changed? What would make them change? Encourage guessing. Accept any hypothesis although other children may not. *Well, let's be explorers, and find out.*

At outdoor classroom - *Was the log here before? Does it look the same? What about leaves on the trees? Bigger, smaller, different color? Are the same kinds of animals here? in the same place? more animals, fewer? Is there more soil here? What is making it?* If you find a piece of metal, ask *What happened to it?* At a place where water drips, *How did the water change things?* Look for moss, lichens, algae. *Are they the same? Is the weather the same? the*

temperature? Any eggs hatched? Any new plants and animals? Be sure you have children look at changes which have taken place under the board you put out in Lesson 2.

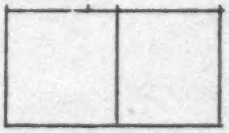
Before you come in, ask *Do you know what litter is?* (Anything that people throw away in the wrong place.) *I want everyone to pick up at least one piece of litter on our way back. Hold it until we get in and then I'll tell you what to do with it.*

In classroom - *Put the litter in this jar. We'll add some water, put the cover on it, and leave it here.* Some place accessible to the children. *Everyday you may open it and find out what's happening to the litter.*

What are some of the changes we found outside? List on chalkboard. *What made them change?* (weather, sun, water, air, lack of air).

EVALUATIVE ACTIVITY:

Hand out drawing paper and crayons. *First draw a line down the middle of your paper.* Demonstrate.



On one side draw a picture of something you saw either in the outdoor classroom or in this classroom. Make it look like it did when you first saw it. On the other side draw what it looks like now. When you are finished bring your paper to me and I'll write what you tell me about it. These papers could be displayed on the bulletin board under "Changes".

SUGGESTED EXTRA ACTIVITIES:

If plants in terrarium are growing well, put in animals. (See Lesson 7)

If algae is growing

a. filter algae through cotton ball in funnel
b. observe Daphnia in algae water (use magnifying glasses from Lesson 8). Daphnia will eat algae.
c. Put a guppy in with Daphnia (guppy will eat Daphnia)
d. What would eat guppy? This is an example of a food chain.

Algae ----> Daphnia ----> Guppy ----> larger fish

Bury collected litter. Dig up 1-2 weeks later. *What is left?*

Poem "BUT"

Creative dramatics. One child acts out a change he has observed. Other children guess what it is.

Book - Wet and Dry - Simon
Everything Changes - Howell & Strong

BUT

A Story for our Hands to Tell

This is a plant
So new and small
That it hardly shows
In the moonlight at all -
BUT!

This is a rabbit
Hopping, hopping,
He smells the plant,
And now he is stopping -
BUT!

There sits an owl
With great big eyes
He sees the rabbit
And silently flies -
BUT!

Here comes a fox
Not missing a sound
He gets ready to pounce
When the owl strikes the ground
BUT!

Here comes the farmer,
Looking things over
He gives a whistle
To his big dog Rover
So -
The fox slinks away
The big owl goes -
The rabbit hops home,
The plant just grows.

--Mary Theilgaard Watts

LESSON 10

CONCEPT: Plants and animals are affected by their environment and adapt to it. These changes usually take place slowly. Plants and animals die and become another part of the environment.

MATERIALS:

Jars, especially baby food jars, with lids
plastic boxes with lids
sectioned plastic boxes with lids
sandwich boxes
refrigerator boxes

} You will need at least one container for each two children.

plastic wrap
plastic spoons
* masking tape
* felt pens

* small pieces of food
* crystals, salts and powders - examples: ice, different kinds of sugar gelatin powder, baking powder, sof drink powders, laundry starch, powdered paint, flour.
* metals - examples: nails, bolts, steel wool, pieces of aluminum, copper
* seeds - corn, beans, peas, rice
* miscellaneous - crayon, wood, leaf, candle, cloth, soil, gravel

} You should have some for each group.

* table for change jars - could be science table
activity sheet #4
crayons

PROCEDURE: *Yesterday we talked about changes that have taken place in our environment. What were some of those changes?*

Show a few small jars or boxes. *What could we put in these jars or boxes that would change? What things wouldn't change? What about a piece of apple? Would it change? Powdered paint? Would it change by itself? a nail? a bean seed? a piece of wood? a stick?* Try to get the children to speculate whether or not it would change by itself, what it would need to change, how it would change.

I am going to put you with a partner. When you have a partner, talk over what you would like to put in your change jar. It can be something on the table (where you have the items listed in "materials") *but it doesn't have to be. It can be anything you think might change. When you've decided, get a container, put the thing you've decided upon in it, put the top one, and bring it to me. I'll write your names, what you put in the jar, and the date on a piece of tape. When the tape is on the jar, put it on the table.* Indicate where. *Be sure to check the jars each day to see if anything is changed.* Do not suggest adding

water, heat, etc. at this time. Let the children get the idea.

EVALUATIVE ACTIVITY: Hand out activity sheet #4 and crayons. *Look at the pictures on the left. They are* Name the pictures. *The pictures on the right are* Name those pictures. *The things on the left have changed to the things on the right. Put your crayon on the top picture on the left.* Make sure this is done. *Draw a line to the picture on the right that it has changed into.* Wait until all understand the directions, then say, *Now finish the page the same way. Some of the lines will cross each other, that is alright. When you are finished, show your paper to me.*

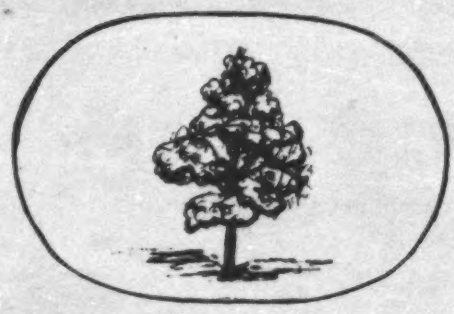
SUGGESTED EXTRA ACTIVITIES: Additional change jars

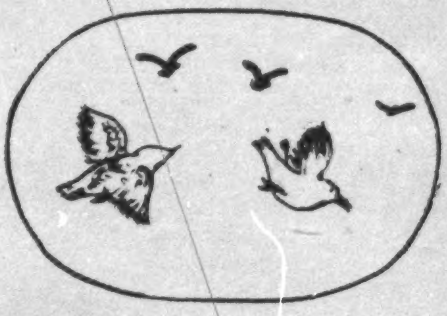
Observation of class projects (aquarium, etc.)

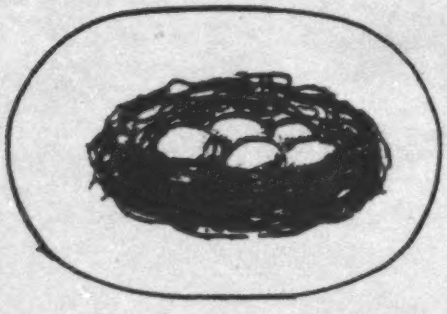
TEACHER NOTE: Don't forget your lunch tomorrow. You need it for the next lesson.

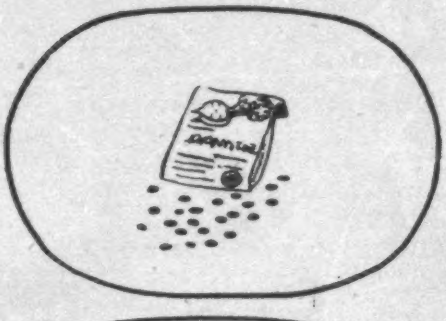
Activity Sheet #4

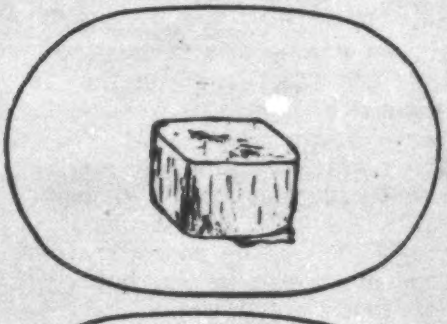
DRAW A LINE FROM LEFT TO RIGHT BETWEEN THINGS THAT CHANGE

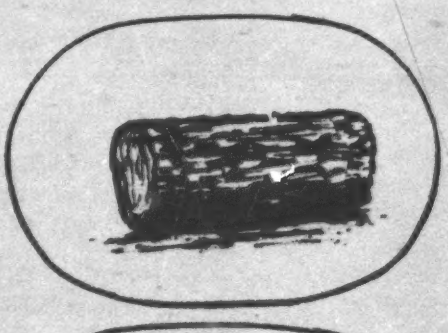


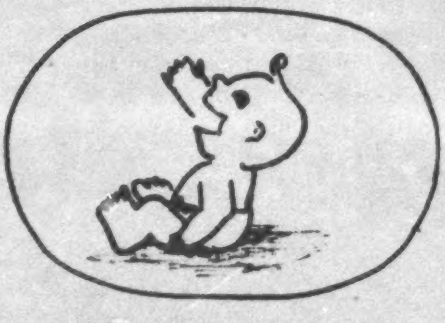


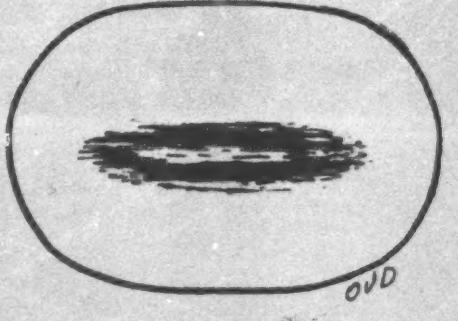












LESSON 11

CONCEPT: People, as living things, use their environment to live.

MATERIALS:
* teacher's lunch
  - sandwich
  - carrot sticks
  - apple
  - cookie
- footstep cards - one step, several steps
- silkworm case
- wool
- cotton
- leather
* silk scarf
- salt - 1 pkg.
- flour - 5 cups + extra
- wheat seeds
- cooking oil
* bowl
* mixing spoon

Materials for extra activities
* ingredients to make cookies, etc.
* utensils to make cookies
* The Tree - Carrick

PROCEDURE: *We've been talking about how plants and animals need things in their environment. Tell me, what do we need in our environment?* Someone will probably say "food". *What is your favorite food? Where does it come from?* Be sure children understand that their food can be traced back to plants. Example: Peanut butter ----> store ----> factory ----> farmer ----> plant.

Now let's try something else. I have my lunch here. Indicate lunch. *As I take things out, let's try to figure if it came right from the plant, one step,* put the "one step" card on the chalkboard with tape *or was it changed several times before I put it in my lunch. That would be more than one step.* Put other card on chalkboard. Hold up carrot sticks. *One step or more than one step?* Probably they will decide one step although someone might say you cut them and that's a step. Accept whatever the class decides and write "carrots" under the appropriate card. The sandwich will have to be separated into bread, butter, and filling. The cookie will show that foods are often a combination of materials, but most of them can be traced back to the plants eventually. *Well, I guess we really need plants in our environment, don't we? What would happen to us if there were no plants in our environment?*

Where do we get our clothes? (Buy them, mother makes them) *Where does the store get them?* (material, fabric, cloth sewn into clothes) *How do people make cloth?* (weave threads) *Where do the threads come from?* You probably will have to explain how threads are made. Show raw materials and finished product as much as possible with the finished product preferably something a child is wearing. If there is time, you may want to trace houses back to raw materials.

Wouldn't it be fun to make something to work with from things in our environment? We'll make some play dough. As you use each ingredient, trace back to the original natural resource.

Play Dough

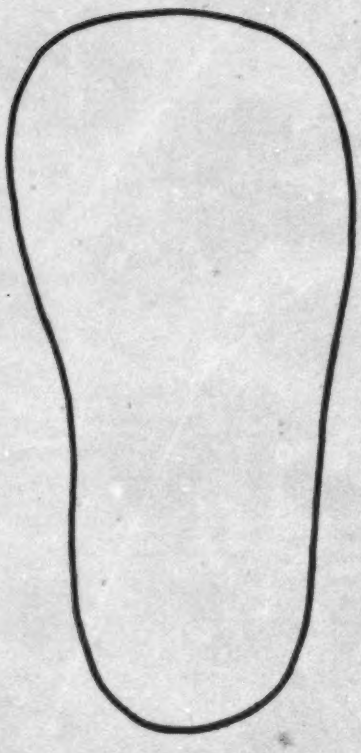
2 cups salt (probably dug out of ground - mined)
5 cups flour (ground up wheat seeds. Show children wheat seeds.)
small amount of cooking oil (made from plants)
enough water to make right consistency *(Where do we get water?)*

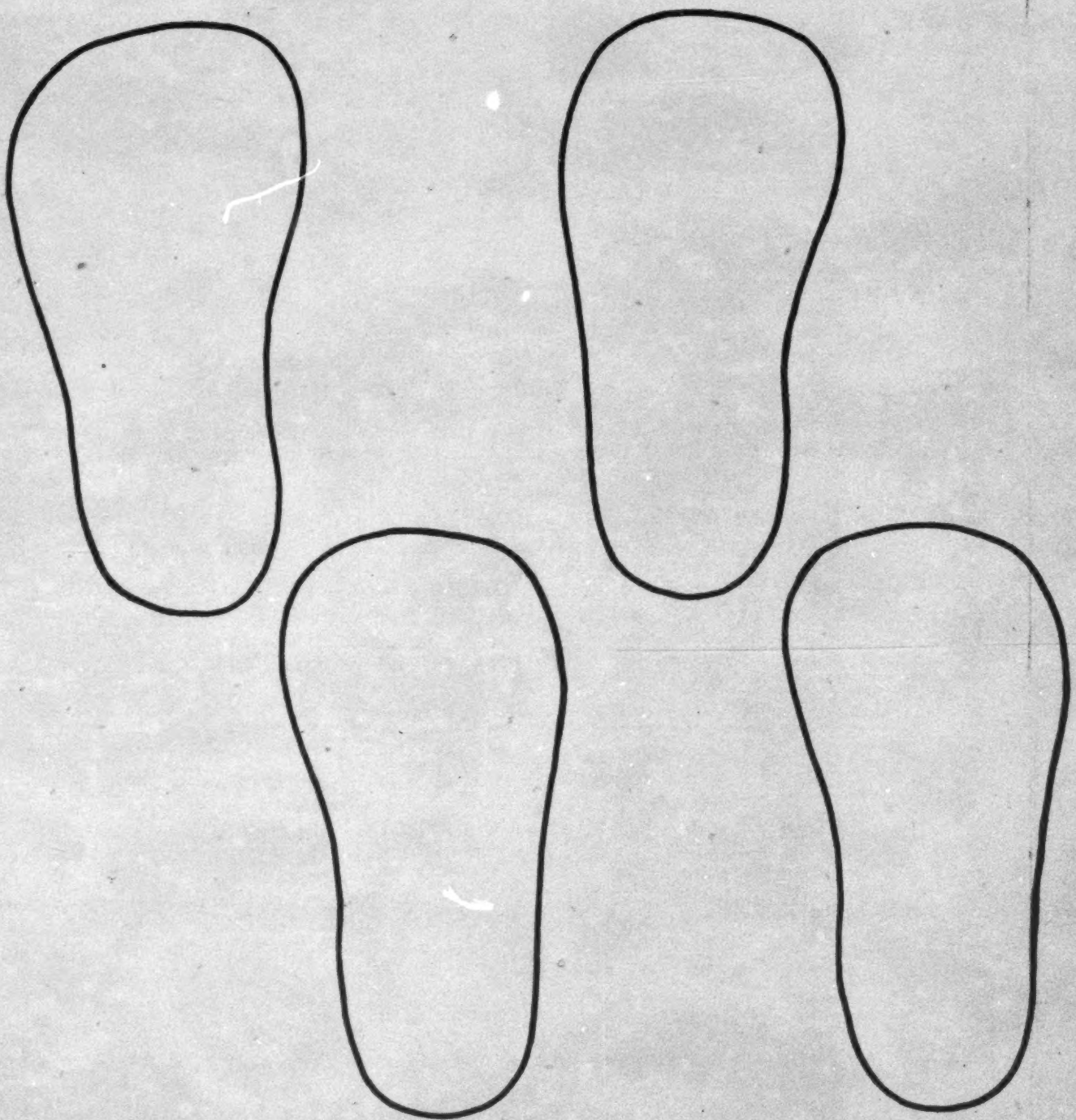
Mix; if too sticky, add more flour

Each child may model something in his environment with the play dough. If allowed to air dry, it will harden in a few days.

SUGGESTED EXTRA ACTIVITIES: Make cookies, butter, instant pudding

Use the book - The Tree by Carrick





LESSON 12

CONCEPT: People change their environment, sometimes very quickly.

MATERIALS:
felt figures
* flannel board
paper sacks - lunch box size - 1 per child
* Smoky, the Bear ditto on light brown construction paper - 1 per child
* scissors
* crayons
* paste
Smoky the Bear puppet

Materials for extra activities
* Smoky the Bear - book
* "The Treehouse" - film

PROCEDURE: *Yesterday we were talking about how people used the things in their environment. This usually changes the environment and sometimes it changes it very quickly. Today I'd like to tell you a story about two children having a picnic in the woods.* Make up a story using the following outline and using the felt figures provided.

Boy and girl went to woods for picnic.
Walked until discovered pond of clear water, beautiful wild flowers, grass, and trees.
What did they do? How did they feel? (children respond)
They played - boy cut initials in tree with knife. Sally picked all the wild flowers she could find.
Tommy tried to hit bird with rock, Sally chased rabbit and squirrel.
Then time for lunch. Spread out food.
Decided to roast marshmallows. Tommy cut sticks, Sally gathered twigs and dry leaves.
Tommy got out matches and started fire. Fun to roast and eat marshmallows.
Suddenly notice getting late. Jump up, leave picnic litter all over ground. Breeze began to blow. Fire spread to dry grass and trash.
Try to put it out, but can't. Get scared and run home.
Fire got bigger and bigger. Started burning beautiful woods. Soon everything gone, but burned trunks, pond filled with burned leaves and sticks.

What are some things Tommy and Sally did that you wouldn't do? I can see you are really conservationists. That means people who take care of our environment and keep it beautiful and productive.

Show Smoky the Bear puppet. *Who is this? Is he a conservationist? Why do you think he is? What does he say?* Make puppet say "Remember, only you can prevent forest fires." *What does "prevent" mean? How can we prevent forest fires?*

Hand out ditto sheet, scissors, crayons, paste, sacks. *Now you may each make a Smoky the Bear puppet. Cut out all the parts. Then paste on sack like this.* Demonstrate. *With your red crayon, make the mouth like this.* Demonstrate. *Color Smoky any way you wish. Then have him tell everyone about good conservation rules.*

SUGGESTED EXTRA ACTIVITIES:

Smoky, the Bear - book

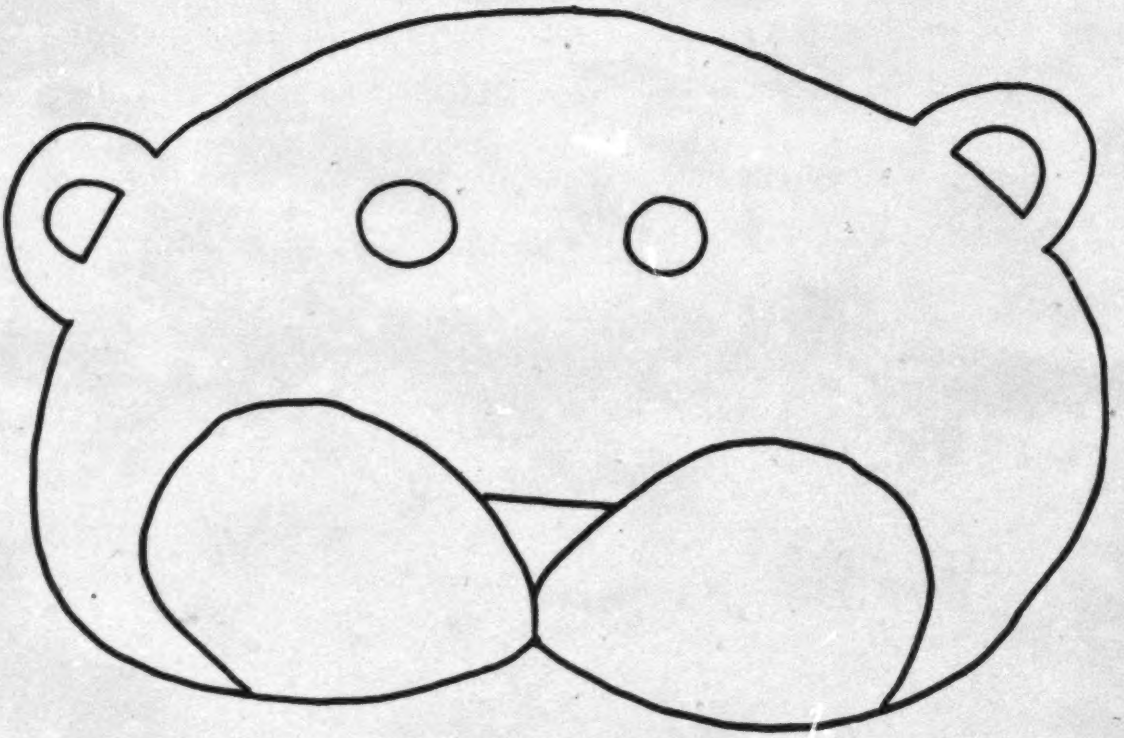
Film - "The Treehouse" - open-ended, very well done, should stimulate discussion on conservation

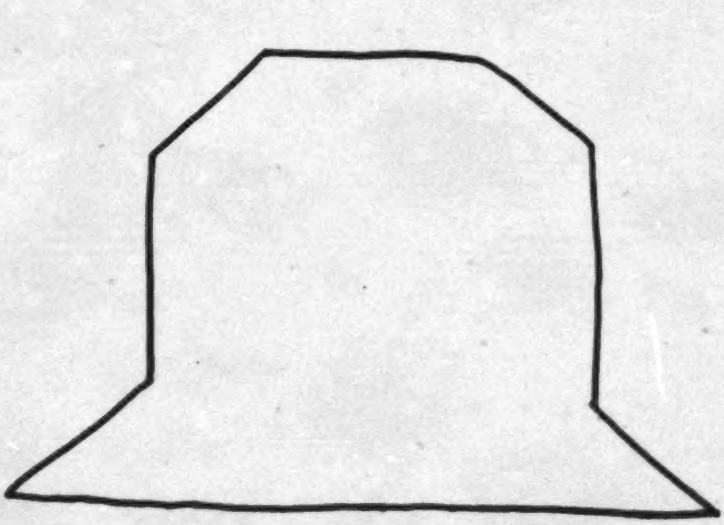
Discussion about forest ranger's work, fire protection, pest control, wildlife, recreation.

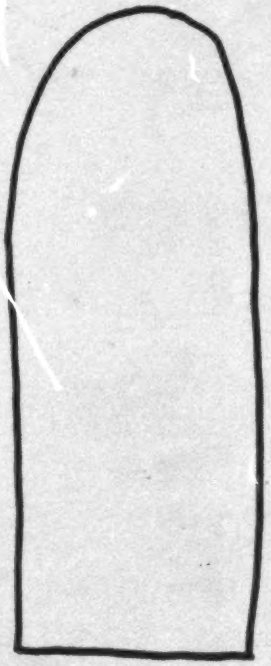
NOTE TO TEACHER:

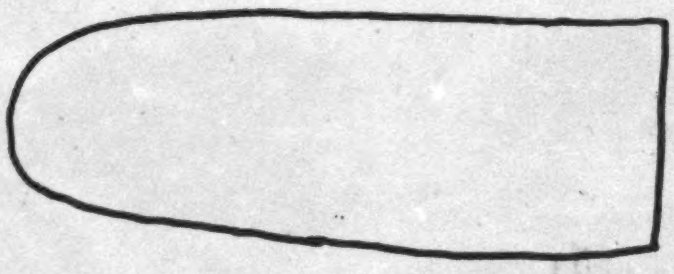
Before children go home ask them to bring a paper grocery bag from home tomorrow. We'll need it for something we'll make.

Also ask custodian not to empty one waste basket today. You'll need the scraps tomorrow.









LESSON 13

CONCEPT: People create litter; litter changes the environment. Litter is our responsibility.

BACKGROUND INFORMATION: Each person in the United States produces an average of 4.8 pounds of refuse every day. By the year 2000 we will produce 6.8 pounds of rubbish each day. Between 1970 and 2000 almost 10 billion tons of solid refuse will have accumulated in the United States. The nation is running out of dumping space - one answer seems to be "recycle".

Another answer may be in the consumer's life style habits. Many of the products we buy are packaged way beyond what is needed. We reach for a paper towel in the kitchen when perhaps a rag would serve the purpose. Many grocery stores are now encouraging customers to recycle their shopping bags by bringing them back for use the next time they come shopping. In many ways we create waste without thinking about it. There are many small ways we could cut down on the refuse we produce.

MATERIALS:
*litterbug mask - made by teacher
*large paper grocery bags - for children who did not bring them
*ditto of litterbug - litterbag face - 1 per child
pipe cleaners - 1 per child
*scissors
*paste

Materials for extra activities
*litterbug coloring pages
*paper for posters
*follow a maze papers

PROCEDURE: *Yesterday we talked about being conservationists. What does that mean. How could we be a conservationist at school? at home? to and from school? in the car?*

Someone will probably mention litter. *Remember how we picked up the litter outside, brought it back, and put it in the jar? Let's examine it to see what has happened.* Discuss smell, appearance, compare to some of the changes in changes in changes jar. *Have some things not changed? Would they have changed if we had left them outside? What do you think that means to us? If people let all the litter stay where it was, what would happen to our environment? What kind of environment would your children have?*

Put litterbug mask over your head and throw paper from waste basket all over the room. The children will think you've gone mad! After you take it off, being careful to keep the litterbug face up, and the children have calmed down, say - *What was I?* (a litterbug) *What does a litterbug do? Are you a litterbug? Have you ever seen a litterbug before? Tell me about places you have seen where litterbugs have been.*

Turn litterbug mask over and attach a pipe cleaner handle. *Now I have a litterbag. Who remembers what a conservationist is? What does he do?* Choose a "conservationist" to pick up the litter, put it in the litterbag, and then empty the litterbag into the waste basket. Emphasize where the litter goes: tomorrow we'll see what happens to it then.

I thought you each might make a litterbag. That's why I asked you to bring a sack from home. It's always a good idea to use things over again, isn't it?

Hand out ditto sheet, scissors, pipe cleaner, paste, and also sacks to those who did not bring them from home. *First cut out the parts of the face, like we did Smoky the Bear yesterday. Then paste them on the grocery bag like this.* Demonstrate. Most grocery bags have one side without printing. Make sure children get mough and forehead turned right side up. *Now you have a litterbug mask. Try it on if you want to, then take it off and attach the pipe cleaner like this.* Push one end in each side and bend up. *Let's take our litterbags outside and pick up litter; everyone can be a conservationist. Then I'll show you where to put it.*

After the litter is collected show children large trash receptacles at school which hold the trash until the garbage collector can come. Make sure they understand the waste baskets in their room are emptied there by the custodian, who is another conservationist.

SUGGESTED EXTRA ACTIVITIES:

litterbug coloring pages

children may make litterbag posters for display in school

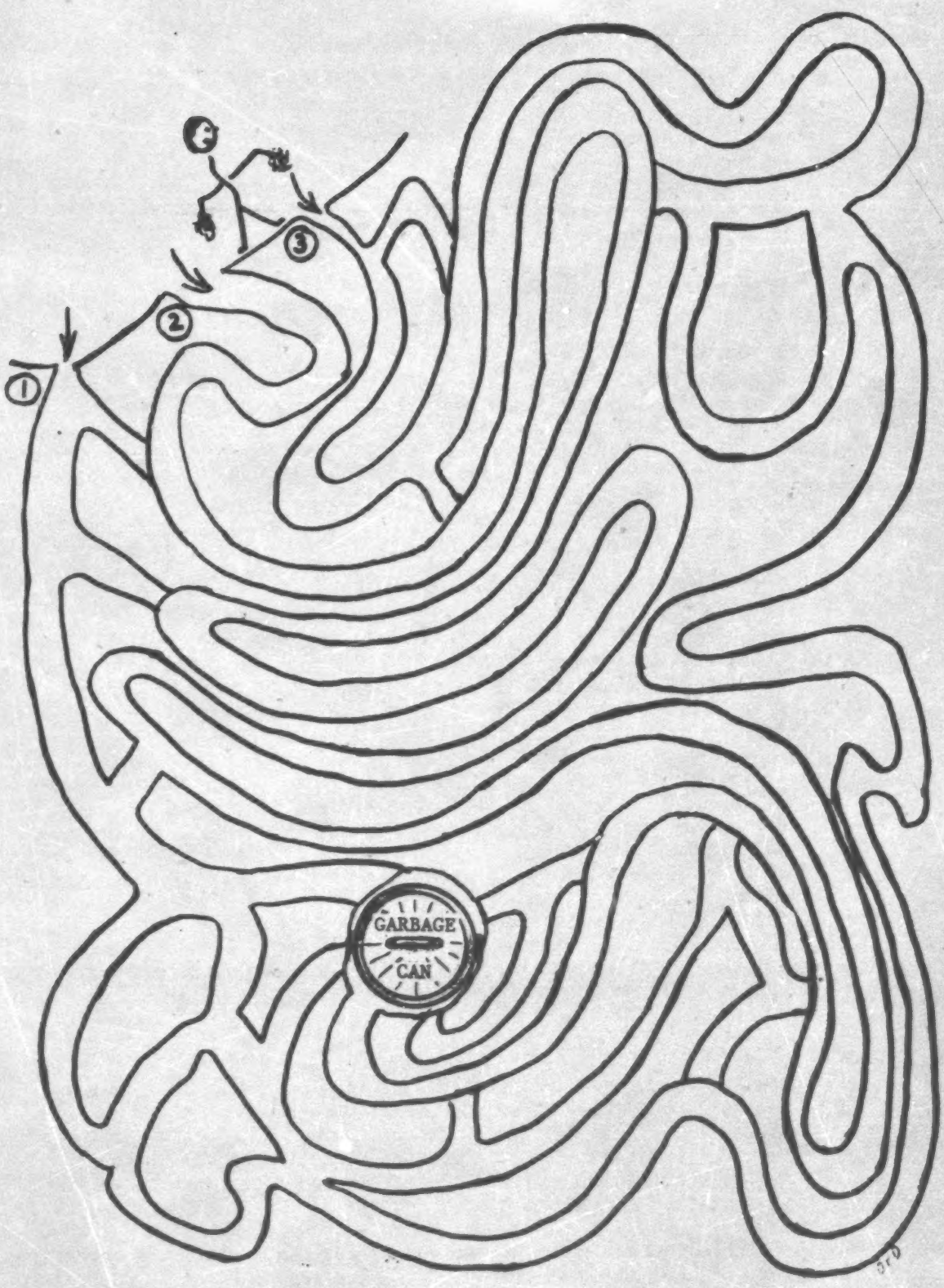
follow-a-maze-picture - Find the way to the waste basket without crossing a line

Litter bag

Litter bug

Buried in Litter

Littering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GARBAGE
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LESSON 14

CONCEPT: There are special people who work to take care of our environment. Each of us needs to take care of our environment.

MATERIALS:
*garbage collector
*paper, 18" x 6"
*crayons

Materials for extra activities
for garbage trucks
*shoe boxes
*cardboard pieces
*small boxes like aspirin or tea boxes
*glue
old magazines

PROCEDURE: *Remember yesterday we found out where the trash from our waste baskets goes? Who is the conservationist who empties the waste baskets?* (custodian) *But how does the trash or litter get in the waste basket? Does it walk by itself? What does the custodian do with the litter? Why doesn't he burn it?*

Today we're going to see and talk with another conservationist. He uses a big tool in his work. Take children to watch garbage pick-up at school. (If garbage pick-up is not when children are at school, perhaps you could take a picture of the collection process. Try to arrange for a garbage collector to come and talk with the children.) As they talk with the collector, let them ask questions about the truck, where the trash goes, etc. Be sure to ask how we can help the garbage collector do his work.

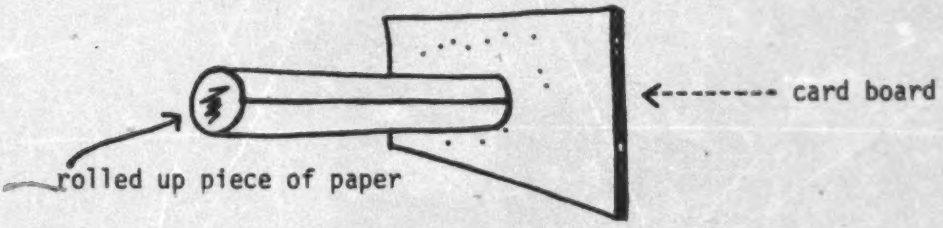
EVALUATIVE ACTIVITY: Back in room, hand out crayons and paper. *Fold your paper in half, then in half again, so you have four parts. I want you to draw a story on this paper. This will be a story of a scrap of paper you found on the way to school. On this side* (indicate left) *start the story. Draw you when you first see the paper. Then draw what happens next and next and next. The last picture will be on this side.* (indicate right) *When you are finished bring it up to me so I can write about your story.* As you talk with the children about their stories, praise them if they picked up the paper and disposed of it properly in their story.

SUGGESTED EXTRA ACTIVITIES: Cut of old magazines, cut pictures of people working to take care of our environment. Put up on bulletin board.

Make model of garbage truck. Cut the cardboard to fit inside of the shoe box. Glue a rolled up piece of paper and tape it to the center of the cardboard at a 90^{0} angle.

Cut a hole in the center of one end of the box. Place the cardboard piece into the shoe box and insert the rolled up piece of paper into

the hole. As the child pushes the cylinder, the cardboard makes the space on one side of the box smaller, thus "squashing" anything in that area. Glue smaller boxes to the end of the shoe box to form the cab of the truck. Add paper and paint to make it look like a garbage truck. Tinker toy wheels or spools may be added.



Talk with custodian - how can we help?

Field trip to a collection point, transfer station, land fill site.